

Release notes for ENDF/B Development n-094_Pu_243
evaluation

ENDF
B-VII.dev

April 26, 2017

- linear Errors:

1. Negative cross section found
0: Neg. Sig(E)

```
Linearize ENDF/B Cross Sections (LINEAR 2015-1)
-----
Retrieval Criteria----- MAT
Monitor Mode----- Off
Minimum Cross Section----- 1.0000E-10 (Default Option)
... [52 more lines]
```

- recent Warnings:

1. Competative widths aren't all zero like they're supposed to be
0: LRX=0

```
Calculate Cross Sections from Resonance Parameters (RECENT 2015-1)
=====
Retrieval Criteria----- MAT
File 2 Mimimum Cross Section- 1.0000E-10 (Standard Option)
Reactions with No Background- Output (Resonance Contribution)
... [223 more lines]
```

- fudge-4.0 Warnings:

1. Missing a channel with a particular angular momenta combination
resonances / resolved (Error # 1): missingResonanceChannel

```
WARNING: Missing a channel with angular momenta combination L = 0, J = 2.0 and S = 2.0 for "capture"
WARNING: Missing a channel with angular momenta combination L = 0, J = 3.0 and S = 3.0 for "capture"
```

2. Potential scattering hasn't converted, you need more L's!
resonances / resolved (Error # 2): potentialScatteringNotConverged

```
WARNING: Potential scattering hasn't converged by L=0 at E=101.7 eV, xs[0]/xs[0]=100.0% > 0.1%
```

3. Cross section does not match sum of linked reaction cross sections
crossSectionSum label 0: total (Error # 0): CS Sum.

```
WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 0.85%
```

- fudge-4.0 Errors:

1. The spin statistical weights are off, indicating missing channels
resonances / resolved / MultiLevel_BreitWigner (Error # 0): badSpinStatisticalWeights

```
WARNING: The spin statcal weights for L=0 sums to 0.5625, but should sum to 1.0. You have too few channels for
WARNING: The spin statcal weights for L=0 sums to 0.5625, but should sum to 1.0. You have too few channels for
```

2. Calculated and tabulated Q values disagree.
reaction label 2: n[multiplicity:'2'] + Pu242 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -5019002.830841064 eV vs -5.0392e6 eV!
```

3. Energy range of data set does not match cross section range
reaction label 2: n[multiplicity:'2'] + Pu242 / Product: n / Distribution: / uncorrelated
- angular - XYs2d: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (5060110.0 -> 20000000.0) vs (5060000.0 -> 20000000.0)

4. Calculated and tabulated Q values disagree.
reaction label 4: n[multiplicity:'4'] + Pu240 (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -16570242.05352783 eV vs -1.6581e7 eV!

5. Energy range of data set does not match cross section range
reaction label 4: n[multiplicity:'4'] + Pu240 / Product: n / Distribution: / uncorrelated
- energy - XYs2d: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (16650000.0 -> 20000000.0) vs (16649800.0 -> 20000000.0)

6. Calculated and tabulated Q values disagree.
reaction label 6: Pu244 + gamma (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: 6036467.315246582 eV vs 6.02e6 eV!

7. Energy range of data set does not match cross section range
production label 7: /reactionSuite/reactions/production[@label='gamma'] / Product: gamma /
Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (60000.0 -> 20000000.0) vs (1e-05 -> 20000000.0)

8. Energy range of data set does not match cross section range
production label 7: /reactionSuite/reactions/production[@label='gamma'] / Product: gamma /
uncorrelated - energy - XYs2d: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (60000.0 -> 20000000.0) vs (1e-05 -> 20000000.0)

- njoy2012 Warnings:

1. There is a problem with the fission energy release.
heatr...prompt kerma (0): HEATR/nheat (3)

```
---message from nheat---changed q from    1.984056E+08 to    1.895685E+08
                                for mt  18
```

2. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
grouppr...compute self-shielded group-averaged cross-sections (0): GROUPR/conver (0)

```
---message from conver---cannot do complete particle production for mt= 16
                                only mf4/mf5 provided
```

3. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
grouppr...compute self-shielded group-averaged cross-sections (1): GROUPR/conver (0)

---message from conver---cannot do complete particle production for mt= 17
only mf4/mf5 provided

4. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
grouppr...compute self-shielded group-averaged cross-sections (2): GROUPR/conver (0)

---message from conver---cannot do complete particle production for mt= 37
only mf4/mf5 provided

5. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
grouppr...compute self-shielded group-averaged cross-sections (3): GROUPR/conver (0)

---message from conver---cannot do complete particle production for mt= 91
only mf4/mf5 provided